2007 Summer College for Kids at the Seaborg Center Supported in Part by Section 57 Funds

Enrichment Classes for grades 5 – 10
Sponsored Jointly by the Seaborg Center and Marquette-Alger RESA
With Supplemental Funding from Section 57
Report Submitted on August 20, 2007
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Report of Activities

1. Description of program.
   From June 25th through August 3rd, The Seaborg Center offered 12 week-long summer enrichment classes in science and technology for students in fifth through 8th grade. Classes took place on the campus of Northern Michigan University and were selected to offer experiences that are not normally available in the public schools. There were four sessions of outdoor field-research on reptiles and amphibians, conducted by environmental researchers from Northern Michigan University's biology department. Two sessions of NXT Lego™ Robotics allowed students to build, program, and operate robots, using remote computer software. Students explored physical sciences in "the Incredible Marble Machine" and in a more advanced session of "Roller Coaster Physics" and "Solar Energy." In two sessions of Geo-Caching learned to operate GPS units, read maps, and explore Internet Geo-Caching sites to locate hidden treasures. Finally, eight students spent five days backpacking and exploring the environment of Isle Royale National Park.

2. Selection Process:
   Publicity about the programs was distributed in local public schools, as well as through newspaper advertisements and on Northern Michigan University's Website. Students were sometimes referred by teachers or by past participants in the program. Finally, The Seaborg Center worked with Child and Family Services and other social-service agencies to offer scholarships to recommended students.

3. Number of Students who Participated:
   One hundred forty-five different students took part in the twelve classes. More than thirty percent of the students participate in more than one of the classes, with a total class-enrollment of 212 students.

4. Outcomes:
   Classes were structured to encourage students to become more observant and more organized in their thinking. In "Turtles and Toads", students participated in mark-and-recapture research and learned to distinguish male and female frogs. Many were unaware that lizards lived in the Upper Peninsula, and most students were able to locate a lizard on at least one field trip. Almost no students in the geo-caching classes had used GPS units before, and they were surprisingly quick

to grasp the technology. As with the other field-trip classes, students in the geo-caching became much more aware of their surroundings, and they were able to use maps and GPS units to identify their location.

Students gained ability throughout the week to perform more-and-more complex tasks. In Lego™ Robotics they organized their instructions into longer sequences and applied new sensors to accomplish tasks. In "The Incredible Marble Machine," they combined different simple machines into a complex unit to transport marbles. Roller-Coaster Physics applied the basic physical principals of gravity, centrifugal force, and potential and kinetic energy to construct complex roller coasters.

Students also shared their knowledge with parents and siblings by demonstrating projects, bringing home notebooks, and taking their parents to some of the locations they had visited on field trips. Although the classes were not intended to be "Family Science," this was an unexpected outcome of the activities. It was exciting to see students acting as "instructors" for their family members.

5. Additional Information:
   Since the classes took place in the science building on the campus of Northern Michigan University, students and their families also became familiar with the university setting and comfortable visiting the campus.

6. Allocation of Funds:
   Funds were allocated for teaching staff ($3700), transportation ($800), and educational supplies ($500).